

REDESCRIPTION OF THE MAJOR SPINES
OF *POLYDORA LIGNI* WEBSTER
(POLYCHAETA: SPIONIDAE)

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Abstract.—*Polydora ligni* Webster (Polychaeta: Spionidae) exhibits a generally unreported accessory flange on the major spines of setiger 5 resembling that seen in *P. websteri* Hartman, and *P. haswelli* Blake and Kudenov. This diagnostically important flange was previously mentioned by Foster (1971) but has otherwise not been commented on by other workers. *Polydora ligni* is compared with related polydorids in light of this morphological evidence.

Polydora ligni Webster (Polychaeta: Spionidae) was originally described as having a single subdistal accessory tooth on the major spines of setiger 5 (Webster 1879:119). Numerous specimens from southern California and other locations in North America were found to bear a subdistal, laterally produced flange of the type seen in *P. websteri* Hartman, and also *P. haswelli* Blake and Kudenov. This led to a re-examination of Webster's types. Although this accessory flange was originally mentioned by Foster (1971:22-24, fig. 19), it was inadequately described and illustrated, and its significance was not fully discussed. As a result, this systematically important feature has since been overlooked (for example, see Blake 1971:5-6, 1975:210; Blake and Kudenov 1978:248; Light 1978:175-177; Michaelis 1978; Rice and Simon 1980).

The purpose of this paper is to provide additional illustrations of the accessory flange of the major spines of *P. ligni*, and to compare this species with closely related forms in view of this character.

Polydora ligni Webster

Fig. 1

Polydora ligni Webster, 1879:119, pl. 5, figs. 45-47.—Blake, 71:5-6, fig. 102 (synonymy).—Foster, 1971:22-24, figs. 8-21 (synonymy).—Blake and Kudenov, 1978:248, fig. 43h-j.—Light, 1978:175-178, fig. 176 (synonymy).

Material.—NEW JERSEY: Great Egg Harbor, June-July 1878, H. E. Webster coll., 15 types plus 3 slides (USNM 376). VIRGINIA: York River, from oyster clusters, 11 June 1940, P. S. Galtsoff coll., 4 specimens (AHF N1510). NORTH CAROLINA: Morehead City, at causeway, in water-soaked wood, 11 July 1940, O. Hartman coll., 15+ specimens (AHF N1556); Beaufort, outer side of town marshes, on soaked wood, in soft mud, debris and in old *Teredo* burrows, 21 June 1940, O. Hartman coll., 10+ specimens (AHF N1557). TEXAS: Point Penescal, Laguna Madre, in galleries of serpulid tubes, 11 March 1950, W. A. Price coll., 30 specimens (AHF N5648). CALIFORNIA: Santa Monica, Marina del Rey, Station 10A, soft mud, 3 m, 13 April 1979, D. Soule and M. Oguri colls.,

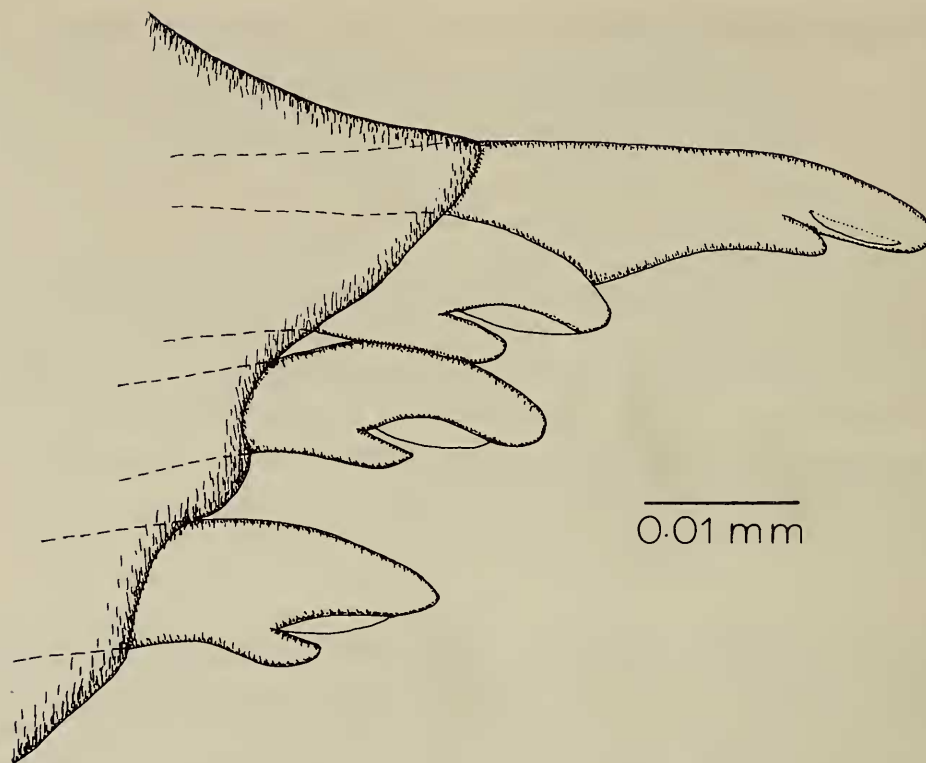


Fig. 1. *Polydora ligni* (type, USNM 376). Major spines of setiger 5, dorsal view.

50+ specimens (AHF 000365-0); San Francisco Bay, San Pablo Channel, Station 17, August 1951, 50+ specimens (AHF N10397); Marin County, Drakes Estero, 11 May 1933, O. Hartman coll., 8 specimens (AHF N3447). BRITISH COLUMBIA (CANADA): Vancouver Island, Kyc Bay, E. Berkeley coll., 3 specimens (AHF N1420).

Emended diagnosis.—Prostomium anteriorly bifurcate, with occipital cirrus; notosetae lacking on setiger 1; setiger 5 typically lacking dorsal superior and ventral inferior setae; major spines of setiger 5 smooth, with small lateral tooth and accessory flange (Fig. 1) in unworn examples; companion setae distally bifurcate, feather-like; bidentate hooded hooks from setiger 7 unaccompanied by capillaries, bearing distinct manubrium and with main fang forming acute angle with shaft; pygidium flaring, cup-like, notched dorsally, not divided into lobes.

Remarks.—The above diagnosis basically follows those presented by Foster (1971:22) and Light (1978:169). Foster's mention of, but subsequent lack of discussion about the accessory flange is confusing, since this structure represents both a significant systematic character and a modification of the concept of this species. The presence of the flange is most easily detected in unworn spines (Fig. 1); it is generally absent in older, worn ones (as indicated by Foster). In addition, the flange may be obscured by the companion setae (which are omitted from Fig. 1 for clarity). It is difficult to see the flange in ventral or lateral views, but it is easily seen in the dorsal aspect under oil immersion. The fact that it has been missed so consistently in this well-studied species is striking.

Polydora ligni further exhibits variability in the presence of superior and inferior fascicles of capillary setae on setiger 5. Typically, both of these fascicles are absent (Webster 1879:119; Söderström 1920:265; Blake 1971:5-6; Light 1978:

176–177). However, Rice and Simon (1980) encountered a high proportion of individuals having both dorsal and ventral fascicles in founding populations at Ballast Point, Florida, and Blake and Kudenov (1978:258) noted that a ventral inferior fascicle is invariably present in Australian specimens of *P. ligni*. It is therefore suggested that the presence or absence of these setal fascicles in such eurytopic species as *P. ligni* is to be expected, especially in founding populations (see Rice and Simon 1980). However, the Australian specimens identified as *P. ligni* by Blake and Kudenov (1978:258) invariably possessed ventral inferior fascicles on setiger 5, and probably represent an undescribed species.

Polydora ligni belongs to the basal *P. ciliata*-*P. websteri* major complex, to which also belongs the *P. alloporis*-*P. wobberi*-*P. cavitensis* subgroup, since the hooded hooks have a manubrium and with the main fang and shaft forming an acute angle. Within this scheme, *P. ligni* is closely allied with *P. latispinosa* Blake and Kudenov, which lacks dorsal superior fascicles of capillaries on setiger 5, and has distally hastate companion setae. It is also related to other members of the *P. ciliata*-*P. websteri* complex in having accessory structures on the major spines of setiger 5. For example, an accessory tooth is present in both *P. ciliata* Johnston and *P. limicola* Annenkova; two flanges are present in *P. haswelli*; and a flange and a tooth are present in *P. websteri* Hartman. Light (personal communication) has seen many specimens of *P. websteri*, especially in the Gulf of California, and living commensally in *Allopora venusta* off California, in which the flange and accessory tooth were not connected, much as that exhibited by *P. ligni*.

It is of interest to note that Light (1978:177) compares *P. ligni* to two other superficially similar species, namely *P. nuchalis* Woodwick and *P. cirrosa* Rioja. These three species all have either occipital or nuchal cirri. However, the presence or absence of such structures is much less conservative than the structure of the hooded hooks and major spines (see Rice and Simon 1980; Kudenov 1982). The hooded hooks of *P. nuchalis* lack a manubrium and the main fang and shaft form an obtuse angle. It is therefore clear that *P. nuchalis* is quite unrelated to *P. ligni*. *Polydora nuchalis* is best considered with the *P. socialis*-*P. flava*-*P. giardi* major complex to which a related species, *P. tentaculata* Blake and Kudenov, is already assigned. *Polydora cirrosa*, on the other hand, possesses hooded hooks similar to those of *P. ligni*, and appears most closely allied with the *P. alloporis*-*P. wobberi*-*P. cavitensis* subgroup in view of the modified major spines, and the *P. ciliata* kind of hooded hooks.

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